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CASE REPORT

Ovarian Torsion without Mass in Early Gestation: Successful Conservative Approach

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Abstract

Ovarian Torsion occurring during pregnancy is a rare but serious complication that can cause significant morbidity for both the mother and the fetus. Its pathophysiology remains incompletely understood, although several predisposing factors have been identified, including increased ovarian volume, increased mobility of the ovary, and an elongated vascular pedicle. Diagnosis relies primarily on imaging, with pelvic ultrasound as the first-line examination, sometimes supplemented by Magnetic Resonance Imaging (MRI) when ultrasound findings are inconclusive. We report the case of a patient at 10 weeks of amenorrhea with a progressing singleton pregnancy, who presented to the emergency department with acute pelvic pain. Clinical evaluation combined with imaging studies led to the diagnosis of right ovarian torsion. An urgent laparoscopic surgery was performed, allowing detorsion of the twisted adnexa. The ovary was found to be viable intraoperatively and was preserved, thus avoiding oophorectomy and maintaining both reproductive function and the normal progression of the pregnancy.

Key Words: *Torsion; Ovary; Necrosis; Acute pain; Pregnancy*

Introduction

Ovarian torsion constitutes a gynecological emergency characterized by the rotation of the ovary, either alone or together with the fallopian tube, around its supporting vascular and ligamentous structures. This rotation surviennent dans la majorité en présence d'une masse ovarienne, typically exceeding 45 degrees, compromises the blood supply to the adnexa, exposing the tissues to ischemia that may progress to necrosis. Although rare, this complication occurs preferentially during the first and second trimesters of pregnancy, with a frequency reaching up to 0.1% in the third trimester [1]. Prompt clinical recognition followed by urgent surgical intervention is crucial to preserve ovarian function and prevent local or systemic sequelae.

Case Presentation

We report the case of a 26-year-old woman, gravida 1 para 0, at 12 weeks and 3 days of gestation, with no notable personal or

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family medical history. She presented to the emergency department with right-sided pelvic pain evolving over three hours, progressively increasing in intensity, and not associated with fever or vaginal bleeding.

On admission, the patient was hemodynamically stable, with a blood pressure of 130/75 mmHg, heart rate of 85 bpm, respiratory rate of 15 breaths per minute, and oxygen saturation of 98%. Abdominal examination revealed a soft, non-distended abdomen with no tenderness on palpation.

Laboratory tests showed normal blood counts (white blood cells: 5,600 cells/µL; hemoglobin: 12 g/dL), a negative C-reactive protein (7 mg/L), and normal renal function (urea: 0.3 g/L; creatinine: 7 mg/L). Urinalysis was negative. Transvaginal ultrasound confirmed a viable intrauterine singleton pregnancy and revealed an enlarged right ovary with peripheral follicular distribution and decreased vascularity on Doppler imaging.

Given the high suspicion of right adnexal torsion, a non-contrast pelvic MRI was performed. It showed an edematous, enlarged right ovary (81 × 44 × 40 mm; volume 74 cc) with preserved peripheral follicles (marked T2 hyperintensity, T1 hypointensity), and the presence of a "whirlpool sign" involving two twists of the ovarian pedicle, measuring 13 mm in diameter. The left ovary was normal in size (45 × 38 × 34 mm; volume 30 cc) with a normal follicular appearance (Figure 1).

Exploratory laparoscopy confirmed right tubo-ovarian torsion. Following detorsion, the ovary appeared viable. The postoperative course was uneventful. The patient was observed in hospital for three days and discharged with progesterone therapy (Figure 2).

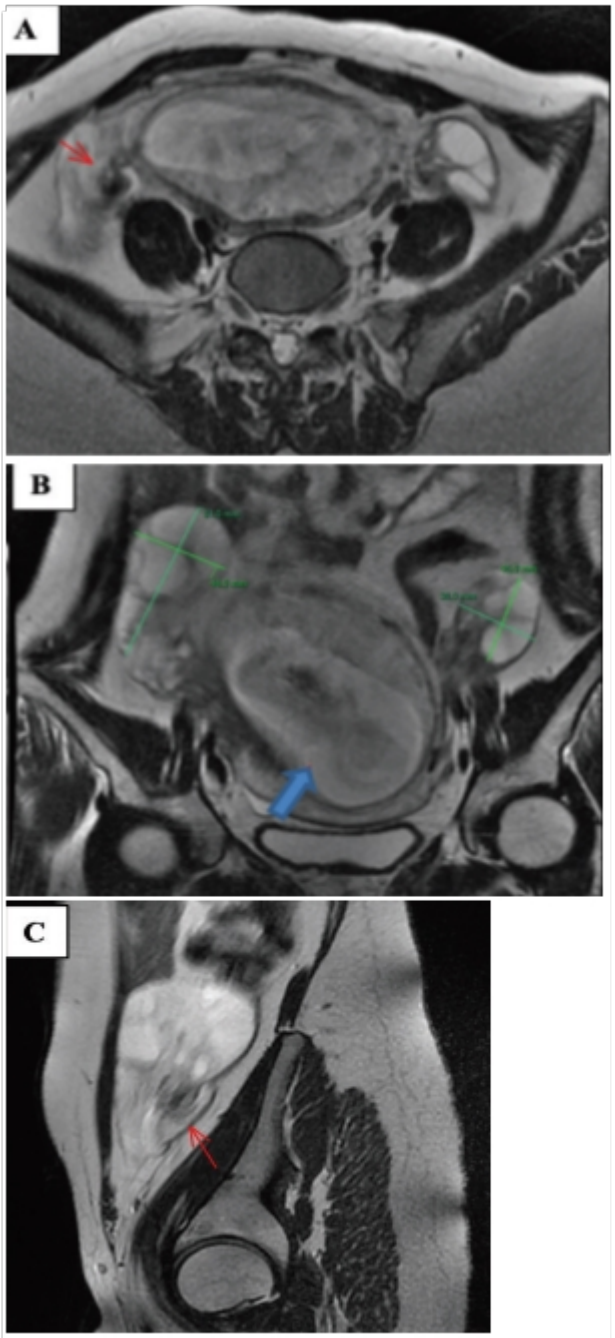

Figure 1) *"Pelvic MRI in T2-weighted sequences: axial (A), coronal (B), and sagittal (C) views showing an intrauterine fetus (blue arrow in B) with a whirlpool sign of the right adnexa (red arrows in A and C)".*

Figure 2) *Perioperative image demonstrating the characteristic whirlpool sign of the twisted right ovarian pedicle (blue arrow), consistent with ovarian torsion.*

Discussion

Ovarian torsion during pregnancy represents a rare but potentially serious gynecological emergency that can lead to significant maternal an dfeta lcomplication si fno tpromptl ymanaged. It is defined as the partial or complete rotation of the ovary, either alone or with the fallopian tube, around its vascular pedicle, resulting in obstruction of blood flow and a risk of ischemia.

Although the pathophysiological mechanisms are not fully understood, several predisposing factors have been identified, including ovarian enlargement, increased ovarian mobility, an excessivel ylon gvascula rpedicle, an despecially pregnancies resulting from ovarian stimulation during fertility treatments [2].

The incidence of this complication is estimated at 1 to 5 cases per 10,000 pregnancies, with potentially higher rates reported in some series [3]. The risk appears to increase during pregnancy, particularly in the first two trimesters, likely due to uterine growth and the displacement of the adnexa. A systematic review confirms this predominance in the first and second trimesters, while third-trimester cases remain exceptional [4,5].

In most cases, torsion occurs on a pathological ovary, such as in the presence of a corpus luteum cyst, benign or malignant tumor, or in the context of ovarian hyperstimulation [6]. Isolated torsion of a healthy ovary, without any visible underlying lesion, remains a rare entity, especially during pregnancy, thereby conferring additional diagnostic and therapeutic interest to our observation. The right ovary is more frequently affected, likely due to anatomical constraints posed by the sigmoid colon on the left side [6].

Clinically, signs of ovarian torsion such as acute unilateral pelvic pain, sometimes associated with nausea or vomiting, are nonspecific. A study by Huchon and Fauconnier (2010) reported a sensitivity of 72.1% and a specificity of 87.5% for clinical diagnosis, with a positive predictive value of 87.2%, highlighting the challenge of diagnosing based solely on clinical signs [7]. Symptoms may mimic other obstetric emergencies (e.g., miscarriage, placental abruption, uterine rupture) or medical conditions (e.g., renal colic, appendicitis, gastroenteritis) [8-10].

Transabdominal ultrasound, ideally complemented by a transvaginal approach, is the first-line imaging modality, although its performance may be limited during pregnancy due to displacement of the adnexa by the gravid uterus [1]. Suggestive ultrasound findings include an enlarged ovary (>5 cm) with peripheral follicle distribution, free pelvic fluid, a twisted vascular pedicle ("whirlpool sign"), and decreased or absent Doppler blood flow [11]. However, Doppler flow may appear normal in up to 60% of cases, especially in partial or intermittent torsion, thus reducing sensitivity [12,13]. Nevertheless, its specificity remains high (>90%) when a "whirlpool sign" of the ovarian pedicle is identified.

In cases of diagnostic uncertainty, pelvic MRI can provide additional information. MRI features suggestive of torsion include a twisted pedicle, stromal edema, peripheral ovarian cysts, tubal thickening (>10 mm), intra-ovarian hemorrhage, and ipsilateral uterine deviation [14]. According to some series, MRI offers a sensitivity of 93% and a specificity of 91% for the diagnosis of ovarian torsion [15].

Treatmen ti sexclusivel ysurgical.Alaparoscopic approach is preferred in early pregnancy due to its proven advantages: reduced morbidity, faster recovery, and lower obstetric risks (e.g., preterm labor, fetal demise) [16,17]. As in our case, the patient underwent laparoscopic surgery, which improved the chances of effective torsion management while preserving the pregnancy. In cases where an ovarian cyst is associated with torsion, detorsion followed by cystectomy is recommended-even in the presence of

ischemic signs. However, if irreversible necrosis is confirmed, a salpingo-oophorectomy may be necessary to prevent infectious and thromboembolic complications [18].

Conclusion

Adnexal torsion, which can lead to significant maternal and fetal morbidity, is an important condition to consider in the differential diagnosis of pregnant patients presenting to the emergency department with acute abdominal pain. The diagnosis of adnexal torsion is rare and more challenging to establish in late pregnancy. Accurate diagnosis and prompt intervention are essential to prevent miscarriage and potential abdominopelvic inflammatory reactions, particularly in young women wishing to preserve their fertility.

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